

In the Claims:

Please add new claims 2-20 as follows.

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2. (New) A system for directing a communications light beam from free-space, said system comprising:

a source for generating a reference light beam wherein the reference light beam has a predetermined spatial relationship with the communications light beam;

an optical fiber having an end;

a detector having a target;

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a mirror for directing the communications light beam toward said end of said optical fiber, and for directing the reference light beam to an incident point on said detector;

a comparator for generating an error signal indicative of a spatial relationship of the incident point on said detector to the target of said detector; and

a control system for moving said mirror in response to said error signal to nullify said error signal to direct the communications light beam to a predetermined point on said end of said optical fiber.

3. (New) A system as recited in claim 2, wherein the communications light beam is substantially parallel to the reference light beam.

4. (New) A system as recited in claim 2, wherein said mirror is a Micro-Electro-Mechanical-Systems (MEMS) mirror with a reflective surface having a diameter in the range of 1 millimeter to 3 millimeters.

5. (New) A system as recited in claim 2, wherein said mirror is a first mirror, said system further comprising:

a first lens for directing the communications light beam to said first mirror and subsequently to said optical fiber;

a second lens; and

AG a second mirror, said second mirror acting in concert with said second lens to direct the reference light beam to said first mirror and subsequently to said detector.

6. (New) A system as recited in claim 5, wherein said second mirror is positioned between said second lens and said first mirror.

7. (New) A system as recited in claim 6, wherein said communications light beam is a first communications light beam, said system further comprising a means for directing a second communications light beam from said end of said optical fiber through said system into free space.

8. (New) A system as recited in claim 6, wherein said optical fiber is a first optical fiber and the communications light beam is a first communications light beam, said system further comprising:

a third lens;

a second optical fiber having an end; and

a means for directing a second communications light beam from said end of said second optical fiber to said mirror and subsequently to said thirds lens.

9. (New) A system as recited in claim 8, further comprising:

a first network coupled to said first optical fiber for receiving the first communications light beam; and

a second network coupled to said second optical fiber for transmitting the second communications light beam.

10. (New) A system as recited in claim 8, further comprising:

a first amplifier coupled to said first optical fiber for amplifying the first communications light beam; and

a second amplifier coupled to said second optical fiber for amplifying the second communications light beam.

11. (New) A system as recited in claim 6, further comprising:

a third lens positioned between said first lens and said first mirror for collimating the communications light beam; and

a fourth lens located between said first mirror and the optical fiber for focusing the communications light beam.

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12. (New) A system as recited in claim 7, wherein the reference light beam is a first reference light beam, said system further comprising:

a means for generating a second reference light beam substantially parallel to the second communications light beam.

13. (New) A system as recited in claim 12, wherein said generating means comprises:

an LED for producing the second reference light beam; and

a third lens for directing the second reference light beam into free-space.

14. (New) A system comprising:

a means for directing a reference light beam to an incident point on a detector, and for directing a communications light beam toward an end of an optical fiber wherein the reference light beam has a predetermined spatial relationship with the communications light beam;

a means for producing an error signal indicative of a spatial relationship of the incident point on said detector to a target on said detector; and

AG a means for adjusting said directing means in response to said error signal to nullify said error signal to direct the communications light beam to a predetermined point on said end of said optical fiber.

15. (New) A system as recited in claim 14, wherein the communications light beam is a first communications light beam and the reference light beam is a first reference light beam, said system further comprising:

a means for directing a second communications light beam from said end of said optical fiber; and

a means for generating a second reference light beam substantially parallel to the second communications light beam.

16. (New) A system as recited in claim 14, wherein said directing means comprises a mirror.

17. (New) A system as recited in claim 16, wherein said mirror is a MEMS mirror having a diameter in the range of 1 millimeter to 3 millimeters.

18. (New) A method comprising the steps of:

directing a reference light beam to an incident point on a detector;

directing a communications light beam toward an end of an optical fiber wherein the reference light beam has a predetermined spatial relationship with the communications light beam;

AG producing an error signal indicative of a spatial relationship of the incident point on said detector to a target on said detector; and

directing the reference light beam in response to said error signal to nullify said error signal to direct the communications light beam to a predetermined point on said end of said optical fiber.

19. (New) A method as recited in claim 18, wherein the reference light beam is a first reference light beam and the communications light beam is a first communications light beam, said method further comprising the steps of:

directing a second communications light beam into free-space; and

generating a second reference light beam substantially parallel to the second communications light beam.

20. (New) A method as recited in claim 18, wherein:

AB said step of directing the reference light beam further comprises the step of using a MEMS mirror to reflect the reference light beam to said incident point on said detector; and

DB said step of directing the communications light beam further comprises the step of using a MEMS mirror to reflect the communications light beam toward said end of said optical fiber.
